THE MARTIN STAR

Sunset for the Axis

June, 1943

CHARLES H. DAY, Modification Manager, The Glenn L. Martin-Nebraska Company

Helped Build Martin's Second Plane

CHARLES H. Day, Manager of Modification Center at Martin-Nebraska, doesn't just know his airplane business, he lives it. For over thirty years, Day has seen this industry come up from "foolish" men's dreams to the largest single business in the history of the world.

Born at Salamanca, New York, in 1885, the only son of a physician and surgeon, Day showed a talent for machinery at an early age. He studied engineering at Rensselaer Polytechnic Institute in New York, after finishing public school and high school at Hornell, New York.

In 1909, Day was in the automobile business in Dansville, New York, which is located 25 miles from the Aerial Experiment Station in Hammondsport, New York; he used to drive over to Hammondsport and watch Curtis, McCurty, Baldwin and Selfridge experiment with airplanes. He established a great desire to learn more about this business of flying, but was still several months away from actual flight.

Taking Horace Greeley's advice, Day moved West, in the fall of 1909, and opened an agency for the Harley-Davidson Motorcycle Company in Long Beach, California. There, Day built his first airplane, engine and all. It was a flyable craft, but he crashed it in the spring of 1910.

After this flying experience, he was asked by Glenn L. Martin, then a struggling inventor, in Santa Ana, California, to join him; and Day has the distinction of helping to build the second Martin aircraft, which later was flown across water to Santa Catalina Island, in May 1912.

In 1914, Day returned to the East Coast, where he became factory and chief engineer of the Sloan Aircraft Company in New York.

When the first World War started, he was associated with the Standard Aircraft Corporation as vice-president and chief engineer. The Standard Aircraft Corporation was, at that time, the second largest builders of airplanes in the United States.

After the war, Day became interested in the metals from which airplanes are built. He joined the Electron Metals Corporation of America, as chief engineer, and spent over two years developing magnesium.

The vast experience acquired by Day at this point in his amazing career set the stage for another interesting chapter in the life of the aviation industry.

Entering the manufacturing field, Day joined forces with Ivan R. Gates (Gates Flying Circus Fame) and formed the Gates-Day Aircraft Company. In 1930, he resigned this connection and started experimental work on non-stalling, non-spinning airplanes.

It was in one of these airplanes that he and his wife, the former Gladys Darlington MacCleary of Washington, Pennsylvania, toured the world, visiting seventy-two cities and twenty-three countries in Europe, the Near East, Asia, from London to Shanghai. Later, this same plane was destroyed in a Jap air raid.

The experiences of Charles Day in China, as chief aircraft manufacturing advisor to Generalissimo Chiang Kai-Shek, is a story by itself, and Martineers in Martin-Nebraska have learned to respect the sound knowledge gained by this man, who learned his business the "hard" way.

Returning to the United States in 1940, Day was supervisor of aircraft production for the Canadian Government, after which he was commissioned a Major in the United States Army Air Force. He was released from this duty, however, when Martin asked him to take over complete charge of the Modification Center at the Martin-Nebraska plant.

THE MARTIN STAR

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Our Part

THE words at the right are among the most famous in the English language. On the surface they speak of a nail causing the loss of a horseshoe, which in turn caused the loss of the horse, of the rider, of the battle, of the kingdom.

But that is only the surface meaning. Like so many other famous words, they are speaking in a simple way one of those over-all truths which control our daily lives.

For the want of a nail
the shoe was lost,
For the want of a shoe
the horse was lost,
For the want of a horse
the rider was lost,
For the want of a rider
the battle was lost,
For the want of a battle
the kingdom was lost,
All for the want
of a horseshoe nail.

—Benjamin Franklin

How does that over-all truth fit the daily lives of us men and women here building Martin bombers? Simply and forcefully. In fact, you might almost say that it is on this truth that the whole Martin organization rests.

At no time was that more clear than when heroes from the Pacific flew back to us the other day in B-26 Marauder No. 9 and B-26 Marauder No. 12. On the flanks of those bombers were the silhouettes of eleven major Japanese vessels they had sunk, and thousands upon thousands of Martin men and women turned out to greet them. And of those thousands upon thousands of Martin men and women, many of us have never had our hands on a finished plane, or even on a major assembly of a finished plane. In fact, it might almost be said that some of us hardly ever see a finished plane.

And yet every single one of us has an important part in every plane that leaves here for the front. We may spend our working day stamping out unromantic-looking small pieces in Detail Manufacturing. We may spend our working day guarding the gates to see that no enemy enters to interfere with our fellow-employees stamping out small pieces. Or we may have the job of serving them meals in the cafeteria or keeping their work-places clean for them.

Unromantic? That is far from true. Capt. Graham Gammon sounded the keynote when he told us: "No job in an aircraft factory is unimportant." *Each of those jobs—thousands of them—do have a great deal to do with turning out bombers that sink Japanese vessels thousands of miles away in the Pacific.*

Your job may be to create some simple small part, or to help indirectly your fellow-employees create that simple small part. That part passes on to fellow-Martineers who work it into a sub-sub-assembly. That sub-sub-assembly passes on to still other fellow-Martineers, who work it into a sub-assembly. That sub-assembly passes on to still further fellow-Martineers, who work it into a major assembly. And that major assembly passes on to still other crews of fellow-Martineers, who splice it to other major assemblies to make a completed bomber.

See the teamwork involved? See how important your job really is? For want of your small detail part of a sub-sub-assembly could be lost. And—

For want of the sub-sub-assembly a sub-assembly could be lost.

For want of the sub-assembly a major assembly could be lost.

For want of the major assembly a plane could be lost.

For want of the plane a battle could be lost.

For want of the battle the war could be lost.

We aren't losing battles these days, and the war isn't going to be lost. And that is because all of us, working away at our jobs are seeing to it that those jobs are done and well done.

June 1943 ★ **EDITORIAL STAFF** ★ **Vol. II No. 5**

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Editorial Offices, The Glenn L. Martin-Nebraska Company

Marauders

TWO proud B-26 Marauders, decorated with the silhouettes of eleven Japanese surface vessels on their noses, returned home last month to receive the plaudits of the thousands who helped build them.

These sturdy Marauders, Numbers Nine and Twelve, have been honorably discharged from active combat duty in the Aleutians, where they sank a light cruiser, two destroyers and three enemy transports. After two weeks of showings at the Martin plants in Baltimore and Omaha and the City Hall Plaza in Baltimore, they will return to service as Army trainers.

With them they brought a message from the Pacific theater—a message of their sister ships, which have stood like Horatio at the bridge in stemming the advances of the Japanese hordes against Alaska and Australia. Single-handed, sturdy Marauders checked the Japs in the New Guinea theater—the only effective aerial opposition to the Sons of Heaven for many weeks in the Southwest Pacific.

With them, too, they brought back two crews of four Army flyers each. One, headed by Capt. Kenneth E. Dempster, of Oakland, Calif., and winner of the Air Medal, flew both bombers in actual combat in the Alaskan theater. Capt. Edgar Graham Gammon, of Hampden-Sydney, Va., who piloted the other plane, won the Silver Star while participating in over 20 combat missions in the Southwest Pacific-New Guinea warfare.

Six Performances

The Marauders and their crews took their bows in an eighteen-hour show on May 18. There were six performances, sponsored by the War Production Board Labor-Management Committee, beginning at 9 A. M. with the Army Division's first shift. The principal event was held at 2 P. M. before the first shift, Plant 1, and 36 high-ranking Army and Navy officers and members of the National Inventors' Council. It all wound up long after midnight with the Army Division's third shift.

When the crowds had been assembled, the two Marauders, which had been flown in the day before from MacDill Field, Fla., were taxied into position to start the show. The eight crew members were introduced—battle-front soldiers to the production-front soldiers.

At Plant 1, Ed Koche, WPB committeeman, handled the introductions, while the Board's chairman, Charles Hurd, did the same at the Army Division. The speakers were Glenn L. Martin, Joseph T. Hartson, Dr. Charles F. Kettering, chairman of the National Inventors' Council and president of the General Motors Research Corporation, who spoke at the afternoon show; Captains Gammon, Dempster and Thomas O'Grady, and Edgar Heaver, WPB coordinator.

Both pilots were enthusiastic about the Marauder. To them and their colleagues still fighting on the Pacific fronts it is the best plane going. Capt. Gammon is frank to admit that were it not for the B-26 he would not be alive today. Capt. Dempster claims it is the "closest plane to an all-purpose ship in the Army."

CAPT. EDGAR GRAHAM GAMMON

Speaking first, Capt. Dempster described the battle actions of the B-26 in Alaska from January until December, 1942. In that entire period only two Marauders were shot down, one by ack-ack fire at Kiska and the other by destroyer A. A. fire.

"We received the two ships you see behind you just after the war broke out," Capt. Dempster said. "They were used not only as bombers, but as torpedo planes, convoy escorts, depth-charge carriers, on anti-submarine patrol and as long-range fighters.

"We added a bit more forward fire power, mainly as a reassuring factor for the pilots. We had few difficulties with the ships. They were mainly small factors which were ironed out by your Service representative, Clarence (Pinky) Kommalan. That man earned every bit of respect we could possibly have. He worked long hours, kept the ships in good condition and kept up our morale with his high good humor. The factory has since incorporated the changes in the later models."

Capt. Dempster then described the history of the ninth and twelfth bombers of their type to be produced at the Glenn L. Martin Company. For the first five months they were used in convoy and anti-submarine patrol duty.

When the Japs attacked Dutch Harbor on June 4, 1942, the B-26's were revolutionized into torpedo planes. They sank a light cruiser. At the same time, Capt. George Thornbrough in a sister-ship came upon a Jap aircraft carrier suddenly. Not having time to use his torpedo in the customary manner, he turned his Marauder into a dive bomber and landed his 2000-pound "tin fish" flush on the carrier's flight deck, tearing out a large hole. Capt. Thornbrough later was lost trying to hunt down the carrier in foggy weather, being killed in a crash landing 100 miles from the advance base.

After such a reception, The Japs withdrew and the Marauders went back to anti-submarine patrol duty. They traveled in three flights with a fourth in reserve for training, ferrying and miscellaneous duties. The three flights were divided into a bomb-carrying flight, one for depth charges and one for torpedoes. They were ready for anything.

After assisting in the September occupation of the Andreanof Island group, they came into their own in October.

"The B-26 really came into its own then," Capt. Dempster declared, "as the principal striking weapon in the Aleutians. It was prized so highly by the Commanding General that it was

Come Home

held as a striking force against enemy shipping, being prepared to leave on a moment's notice if and when enemy shipping was reported within range.

"On October 12 and 13 the planes made raids, low-level attacks and skip-bombing on transports in Gertrude Cove, scoring hits and beaching the vessels.

"Three days later two flights of Marauders—six ships—struck two destroyers of the Hibiki class 50 miles northeast of Sirius Point on Kiska Island. Only one B-26 was lost in the engagement. The Jap commanders misjudged and turned their ships head on to avoid expected torpedoes. The B-26's roared over dropping their 500-pound bombs with delayed-action fuses, sending the destroyers to the bottom. No trace of wreckage was left.

"Through the last of October and early November they continued striking at shipping and on permanent and fixed installations at Kiska.

"On Thanksgiving Day, Capt. John Pletcher led a flight of these planes in an attack on an 8,000-ton Japanese collier-transport in Holtz Bay at Attu. The stern was broken off and she sank in 18 minutes.

"On December 11, these Marauders made a low-level attack through Kiska Harbor, sinking a transport just east of Trout Lagoon.

"Now you see the ships' record painted on their sides. We would like to impress on you the fact that those records are your records as well as the Squadron's record. It is our firm belief that with ships of this calibre, this entire conflict will be over much sooner than our most rabid pessimists believe, and probably just as soon as our best optimists believe," Capt Dempster concluded.

Sold On Plane

Capt. Gammon is equally sold on the merits of the plane. He won his Silver Star getting his Marauder off the ground on four minutes' notice while under bombardment at Port Moresby.

"There is no plane like the B-26. It can't be beaten in design, sensitivity and controls," Capt. Gammon asserted. "I want to thank you people for the grand job you did in building the original Martin B-26."

He was a member of the First B-26 Bombardment Group that went out from Langley Field, Va., which was sent to the Southwest Pacific right after Pearl Harbor.

Settled in the New Guinea area, they carried out important missions on such Jap bases as Rabaul, New Britain; Lae, Salamaua, Buna, Gona, the Huon Gulf in the Bismarck Sea, Milne Bay, Gasmata and other points. Capt. Gammon ranked with such aces as Capt. Jerry Crossen, of New York, who had over 40 missions; Capt. Hoyt Jolly, Auburn, Ala., and numerous others.

CAPT. KENNETH E. DEMPSTER

"In ten months our group flying the original B-26, shot down 90 Zeros with a loss of only six Marauders—a ratio of fifteen to one. We had no escort of any kind. In our raids on Rabaul we were called flying fortresses, medium bombers, heavy bombers and every confounded thing under the sun except what we were—B-26's. It used to make us pretty mad," he asserted.

He told a story of Capt. John O'Donnell, of Baltimore, who had his engine shot out over Lae. While on one engine, his tail gunner shot down two Zeros and O'Donnell flew for four hours and five minutes before returning to Port Moresby and landing safely.

"Then he got in a jeep, slow rolled it, and received a broken left collarbone and right arm. It just goes to prove than the B-26 is safer than a jeep by far," Capt. Gammon said.

On another occasion, three Marauders, piloted by Capt. Jolly, Capt. George Kahle and Lieut. Dewey Flint, attacked Rabaul harbor, running through with ack-ack on all sides. Seventeen Zeros and three Messerschmitt 109's rose to meet them. The unescorted Marauders completed their run, dumped their bombs and 20 minutes later after "a little fracas," they emerged safe, having shot down seven enemy planes. One excited Marauder turret gunner had put some shots into his own horizontal stabilizers for their lone damage. Lieut. Carl King, Capt. Kahle's co-pilot, amused himself during the fray by brushing his teeth—there was little else for him to do.

Capt. Gammon went on his first raid over Rabaul on April 8, 1942. The mission of bombing enemy shipping was successfully accomplished, but "I shudder to think how fast I went over the target," Capt. Gammon commented.

From June 16 to August 17 he participated in fifteen missions over Port Moresby. In one raid he took off with cold motors. There is one Zero officially credited to his crew. It occurred in a running battle when the tail end of his formation, consisting of three B-26's, was attacked by a dozen Zeros.

Generally, after completing his bombing missions, he would await the arrival of the climbing Zeros and then zoom off, flying low, thus being able to outrun the pursuing Japs every time.

After the fourth mission, not one pilot was killed in the Bombardment Group. Capt. Gammon never lost a crew member—a record of which he is particularly proud.

"The power turret did the job," he points out. "It is one of the greatest instruments of the war." The power turret was built by the Glenn L. Martin Company.

Helped In "Gona Wreck"

Capt. Gammon helped to account for the famous "Gona Wreck." He struck and sank a Jap ship in the harbor with a 500-pound bomb. The vessel capsized but part of her hull remained exposed. It has since been bombed on numerous occasions by other pilots.

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"Phantom Bombers" Help Blast Axis —Spare Parts Keep Planes in Fray

As Allied airpower spreads its rising toll of destruction across the face of "Fortress Europe," some of the most devastating blows are those being hammered home by phantom bombers, Marauders and Baltimores which were never even built, but have risen from the dead to strike terror into the heart of the Luftwaffe. While these "Marauders from Hell" may seem like devil ships to the Nazi Air Marshals, there is nothing supernatural about them to the men and women in the factories of The Glenn L. Martin Company, for these men and women know there is a very simple explanation to this seeming miracle. That explanation is "spares" and "sectional building."

Today for every three completed bombers which leave the Martin plants, a fourth bomber broken down into assemblies, sub-assemblies and minor parts, and, packed in wooden cases, is shipped to the fighting fronts. This extra bomber will never reap the glory of its sister ships, but thanks to it their exploits can be multiplied an hundred fold. When one of them returns from combat with a rudder missing, the extra bomber is waiting with a new rudder to replace it. An outer wing is waiting for a second, a landing gear for a third. Thanks to the extra bomber, it is barely a matter of hours before these damaged ships return to action.

The exploits of the extra bomber only start, however, with the replacement of such comparatively minor parts as rudders, outer wings and landing gear. Its full importance is not really felt until a Marauder or Baltimore limps back to base, its fighting days seemingly ended by gaping shell holes in its fuselage. Surely no Nazi pilot can be blamed for marking such a ship down as destroyed. But he is reckoning without the extra bomber. Just as it provided a rudder for the slightly damaged ship, it is ready and waiting with a complete section which can be bolted into place in as little as twenty-four hours to return the supposedly destroyed plane once again to battle.

A major portion of the credit for these phantom bombers which are adding still further squadrons to the tremendous output of the American aircraft industry goes to the engineers and designers of The Glenn L. Martin Company. Back in 1927, when most aircraft manufacturers were building fuselages in a single piece, the Martin Company, foreseeing the day when keeping military airplanes in the air would be as important as building new ones, introduced a two-section fuselage bolted together with four bolts in the BM-1. From that day on the trend towards sectional building of aircraft made consistent progress until finally in 1940 the last of America's major bomber builders succumbed to the new technique.

At the Martin Company the number and completeness of the individual sections used was steadily increased until in M-167 the fuselage of the Martin Maryland, America's first mass produced large-size airplane, was split not only into longitudinal sections, but the front or nose section was also split laterally, both to speed manufacturing and to further facilitate repairs in the field. Today fuselages for the Martin Marauder are built in four sections. Each of these sections is a complete unit, fully outfitted with wiring, fuel and instrument lines and hundreds of other items of equipment. Arriving at Final Assembly, those sections which are destined to leave the factory as parts of completed planes are bolted together with tension shear bolts. The others, reserved as spares for new squadrons of phantom bombers, are routed for crating and shipment overseas.

The Martin contribution to the phantom bomber squadrons has been by no means limited, however, to the designing and engineering of sectional built aircraft. Precision manufacturing methods had to be evolved so that every section would be fully interchangeable with every other section of a similar type and would fit perfectly on any Marauder that needed it, no matter whether it had been built in Baltimore or Omaha. How completely this problem has been solved has been revealed by recent Wright Field tests.

Another major problem has been the production of spares. Today these extra bombers comprise approximately 30 per cent of the total Martin output; and without careful advance planning, the siphoning of any such quantity of parts off the regular production lines might easily disrupt the output of completed planes. To solve this problem the Martin Company set up a section of the Engineering Department to deal exclusively with the question of spares. This section has recently been combined with other Martin groups to form a complete independent "Spares Division." As soon as the designs are drawn up for a new airplane, members of this division get together with an Army or Navy "spares team" and work out a list of the extra parts needed.

The spares engineers then work out a breakdown that will supply the required number of spares while at the same time providing the maximum output of completed bombers. In the course of this breakdown many details have to be worked out. Tool Design and the Production Department are consulted, and mutually satisfactory arrangements made so that spare sections can be run through without some of the instruments and equipment which is installed in those destined for complete airplanes, and still not disrupt the schedules.

Even after these sections and parts have passed through the manufacturing stages, they have still not left the province of Martin engineers. The problems of shipping and installation once they reach their ultimate destination remain. To meet them, special shipping crates have been designed by The Glenn L. Martin Company—crates which not only protect the parts and sections against the elements, shock and careless handling, but which open up to form jigs on which the phantom bombers can be assembled at hastily erected bases where cranes, hoists and conveyor belts are often unknown luxuries.

AIRCRAFT SERVICE MEN MEET HERE. *Members of the service committee, Aircraft War Production Council, East Coast, Inc., met last month at the Glenn L. Martin Company. Thomas L. Taylor (second from left, front row), of the Martin Company, was recently elected chairman.*

Box Kites to Bombers

The China Clipper Heads West on Her First Scheduled Flight

CHAPTER XVI

During the early days of Martin operation at the new Baltimore plant, the company played an important part in both Army and Navy developments in the air arms. The evolution of the B-10 as the world's outstanding bomber had its counterpart in the first practical dive-bomber and an advanced type of patrol plane for coastal operations.

The BM-1, with its 1,000-pound bomb, drew the eyes of the entire military world as Navy pilots developed a new technique of bombardment—a technique that later was to languish in America when the new high-precision bombsight was to alienate interest to high-level bombing. But Germany was to appropriate the technique, hold it in secrecy and confound Europe with smashing dive-bombing attacks in a new world war. The PM-1, a shark-like twin-engine flying boat, was an important tool for the Navy's herculean task of patrolling the vast shorelines of our continent. Large numbers of both of these types were produced at the same time that the B-10 was being turned out in quantity production for the Army.

But Glenn Martin was not satisfied, even with these highly successful evolutions. There was another field yet to be tilled—the transoceanic commercial. For many years Martin had believed that the airplane ultimately would take up the burden of ocean transport.

Down in the Caribbean a fascinating development was taking place. The breakneck boys had ceased to dunk themselves in the ocean; public interest in stunt flying of the oceans had waned, and the adventure was no longer profitable. Now Pan-American Airways was doing a conservative but, withal, spectacular job of over-water commercial operation. It had shuttled down the West Indies; it had jumped to the South American mainland and had pushed its line deep into the South, carrying passengers, mail and express —and showing an operating profit. Its safety record was impressive. Its crews were highly trained in aviation. The public was showing a remarkable confidence in multi-engine flying boats.

Here, then, was the laboratory of ocean flying. Martin cast eager eyes at it. So it was when Pan American asked for airplanes that would span the oceans with safety and still allow a profit, Martin was one of only two aircraft manufacturers who jumped at the chance. The Martin design won, the while sage engineers gazed upon it and shook their heads.

"It can't be done," they said. "Such a ship can't be built, much less fly."

But as months rolled by there began to take form in the Martin factory (now A Building, given over entirely to shops) a great hulk of a boat. The idea of putting wings on such a monster seemed fantastic. How could it ever get into the air? To this day, some of the older Martin craftsmen admit some misgivings, but there were none in the Engineering Department and none in the front office. Two other similar hulks were taking form.

"They will fly," said Glenn Martin, Ken Ebel and L. D. McCarthy, the project engineer.

Then came a red-letter day. The huge China Clipper started her short journey down the ramp for Middle River, her great wings flashing back the sunlight, her four big engines reaching forward. A great crowd stood on the banks and a cheer went up as the giant slid into the water and strained at her ropes. Cameras clicked, reporters jumped for telephones.

A newshawk approached Glenn Mar-

[*Continued on page 18*

Soldiers' Hardships Make Rations On Home Front Seem Luxurious

When you get fed up with rationing, whether it be of tires, gas, meat or shoes, think of some of the following excerpts from friends' censored letters to George Schmidt, Martin Educational Department. Then decide whether or not you are putting everything you have into the war effort.

Dear Friend:

Here I am back in friendly Australia. I was evacuated from the (New Guinea) front as a casualty. . . . We have been up in front where the Jap patrols at one time were on all sides of us. We have been bombed, strafed, been among exploding artillery and mortar shells and have had Jap snipers cover the trail we were taking. . . . No one can imagine what we have been through in the past six weeks. Sixteen days of the time I led my group over a wild jungle trail which included hills and dense swamp . . . the rain was continuous so that it was impossible to keep dry. . . . The jungles are so thick that if one sees more than 15 feet off the trail he is fortunate. The trees tower high, 150 to 200 feet is usual, and they are covered with dense vine growths. The trail is mud and is usually over shoetop and frequently knee deep. We were our own engineers and had to cross rivers by fording, swimming and on native rafts or "lakators" . . .

The natives of Papua live off cocoanuts, bananas, pineapple, a potato and dogs, also papaya. . . . They are a most faithful people and will not desert a sick or injured soldier but will litter him for days over the most impassable trails to a hospital. They have been dubbed "fuzzy-wuzzy angels" and I think it really fits them.

It is a far cry from the battlefield to home and holiday seasons. For Thanksgiving my boys and I were on emergency rations so we had one tablespoon of "corn willie" and two tablespoons of rice for each meal, and only were able to have two meals daily. . . . War is so sordid that let us try to keep its hellishness on this side of the world. . . .

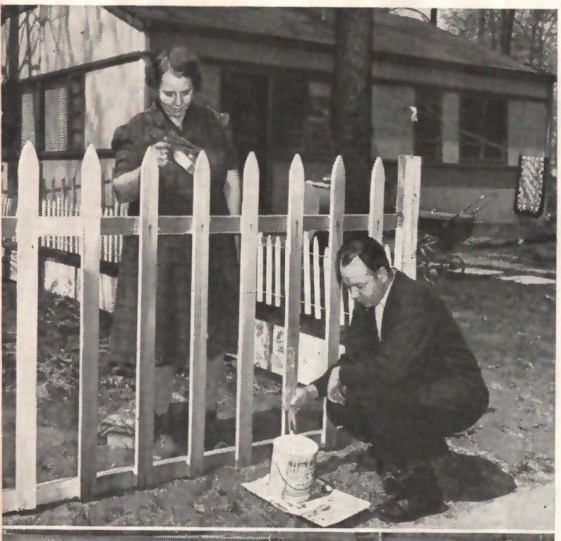
HOMER.

AFRICA.

Dear Friend:

. . . When I see the havoc of real war . . . we are sobered and sickened and know what the dangers are of divulging secrets which might happen to be picked up by the enemy. This is the rainy weather season, and there is absolutely no hot water or heat of any kind for miles around, and no oil, wood, coal or anything else to make heat. Rations are scarce and we eat sparingly but twice a day, trying to make the hard tack last as long as possible. . . . and shocking as it is, we realize that many others have far worse conditions than we, and while it isn't fun to stand in the rain and eat crackers and warm tea for breakfast, yet we do have that and we are thankful. Conditions are extremely difficult, but morale is excellent and Americans certainly do know how to adapt themselves to conditions readily. . . . This country is terribly poor and the natives are in very bad condition. Money does no good; it is the *goods* which we need. If you send me from time to time the following I should be most grateful: Both face and laundry soap, thin writing paper, chocolate bars, cigarettes, any sort of sweets, coffee concentrate, tea balls, sugar and razor blades; and this above all as soon as you can get it to me. . . . We are now concerned with hard labor in getting things together and getting organized in learning the ways of the natives and land here, and in keeping from being shot at by snipers. We know now, in three days, more about war than we learned in the entire past year or anything from that which can be found in the newspapers. . . .

JOHN.



SIGNS OF SUMMER. *While driving through Stansbury Estates last month, a Star photographer found everywhere Martineers out-of-doors, getting ready for summer. Mrs. Barbara Van Dusen and son, John William Alcon (above), the latter employed in Production, second shift, Army Division, were painting the fence around their yard. Building the fence was also Mr. Alcon's handiwork. H. K. Wilson of Stansbury Manor, who works in Plant 1 Tool Room, lost no time in getting down to the river to look over his 20-foot knockabout in order to begin preparations for the sailing season.*

Two-Fifths Mile of Steel Cable in PBM-3

It takes approximately two-fifths of a mile of steel-wire cable to accommodate that mistress of the sea, the Mariner PBM-3. The more compact 187 is less greedy in her requirements: one-tenth of a mile sufficing.

This preformed, galvanized aircraft cable is all-important to the bomber, as Tom Christ, department foreman, will remind you. All major flying controls are hooked up with cable in dual systems for safety. Also it acts as a secondary control to the electrical bomb control system.

The cable comes to Martin's in nine sizes, ranging from one-sixteenth of an inch in size to seven-sixteenths. The 35 employees on two shifts then go to work on it.

First it is cut to approximate length. A terminal is affixed. The cable then is swedged, a new process which has replaced the older and far less efficient method of hand-splicing. Later it is cut to exact length and the other terminal is added.

A girl tests the cable to within 60 per cent of its design load. For the three-sixteenth cable that point is 5,000 pounds, so it is tested at 3,000 pounds. Some additional assemblies are made, followed by inspection and then shipping on to final assembly.

Shortest cable is one and five-thirty-seconds inches in length and is used on the safety switch mechanism of the bomb bay door. Longest is 750 inches. It is connected with the rear rudder on Mariners.

★ ★ ★

"D" Building Electrical Assembly

Woman of Many Jobs

Mrs. Valerie A. Clements of Body, Army Division, is one of the busiest Martineers of our acquaintance. Not only does she work faithfully and diligently at her job in Body Division, but finds time and energy to serve on the War Production Drive sub-committee, helps in scrap collecting, civilian defense service, study machine-shop work, and give blood (several times) to the Red Cross. Perhaps a great deal of her inspiration and determination comes from the fact that she is a member of a real war-minded family. Her son, William, and brother, Harry Taylor, are serving in the Navy.

Flyer Brings News of Son

The recent visit of a group of Army pilots was a special treat to Warren J. Chandler, in charge of housing and car pooling in Plant 1. Captain Edgar Graham Gammon is in the same bombardment group as his son, Captain Frank Chandler, and brought news from Australia to the father. The young officers, starting out together at Langley Field, knew each other well, and Captain Gammon brought word not only of Captain Chandler's health but of his excellent ability and popularity.

"His letters are fine," said Mr. Chandler, "but it is great to talk face to face with someone who has seen Frank recently." The father beamed with pleasure as he listened to little personal stories about his son and his life "somewhere in Australia." Mr. and Mrs. Chandler last saw their son on the day news came of the attack of Pearl Harbor. Captain Chandler's wife and five-year-old daughter, Frances, were with him at Langley Field, and Mr. and Mrs. Chandler had just spent two days there. After leaving for home and having driven for about an hour, the tragic news came over the radio in the car. They realized then, of course, that the coming Christmas reunion was off. In the 18 months since then, Captain Chandler has been in service in New Guinea and Australia.

NEWS FROM SON. *Captain Edgar Graham Gammon, one of the flyers who visited the plant recently, chats with Warren J. Chandler, about the latter's son, Captain Frank Chandler, who was in the same bombardment group. Captain Gammon and Captain Chandler were friends in New Guinea and Australia. Captain Chandler is still somewhere in Australia.*

Navy Pilot Of "Mariner" Wins DFC For Sinking Submarine

PBM-3 Mariners are coming into their own on the anti-submarine front. They have proven themselves in defending the coasts of this country, protecting convoys and on other missions for the Navy.

Recently two exploits of the patrol bombers have been disclosed by the Navy Department. One involved the surprise sinking of a Nazi U-boat. The other was a successful flight over hundreds of miles of ocean with a heavy and precious load on one engine.

The same pilot, Lieutenant Richard N. Schreder, of Toledo, Ohio, participated in both events.

One day he was bringing in his plane on a routine flight when a large submarine was sighted cruising on the surface. Schreder changed his course, keeping the sun directly behind him to handicap the submarine's observers, and then roared down in a dive attack on the target.

The bomber leveled off at a low altitude and dropped a depth charge which exploded under the submarine's stern just as the enemy craft attempted to submerge. A second depth charge was released as the sub endeavored to dive again and struck squarely on the deck, where it exploded in full view of the plane's crew. Wreckage of the sub was strewn all over the ocean.

On the other occasion, Schreder was headed back to this country from Bermuda. It was only through sheer courage and ingenuity that he was able to bring home the Mariner and a valuable cargo safely after the starboard engine gave out.

OFFICIAL NAVY PHOTO

Lieut R. N. Schreder, U.S.N.

With 30 men aboard and a heavy load of bombs, scrap and mail, the big PBM-3 flying boat bucked a 40-knot headwind to return safely to an Atlantic port. He was more than halfway when the starboard engine began to backfire.

"It was a bit uncomfortable to have the engine quit over the Atlantic, especially when the unpredictable headwind was already delaying our estimated time of arrival until after nightfall," Lieutenant Schreder said.

"The starboard engine kept backfiring and had to be shut down. He had 1,500 feet at the time but climbed to 4,000 feet for added safety in case further trouble developed."

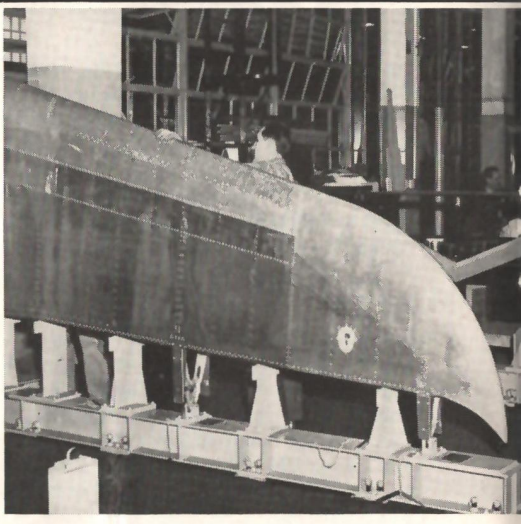
Flying with his live engine alone, Lieutenant Schreder exhibited extraordinary skill in climbing his ship to a higher altitude, especially with the tremendous load he was carrying. Not one bomb nor piece of vital scrap was jettisoned. The big gull-winged Martin bomber moved steadily upward and an hour after dark picked up the lights of its objective port.

"We felt so good then that even the blinding Army searchlights were welcomed," continued the pilot. "We made nearly half the trip on one engine, saved all of our freight, mail, scrap and bombs for another day when they could do some real good."

Lieutenant Schreder in a letter to the Glenn L. Martin Company praised the Mariner for its sturdiness.

New Fin and A
Speeds Produc

Riveting and applying skin, covering for spars and ribs, helps prepare this fin for final testing.



Final testing of fin, before releasing to Final Assembly.

Martin-Nebraska employees enjoying one of their two daily ten-minute rest periods.

Lieutenant General Knud
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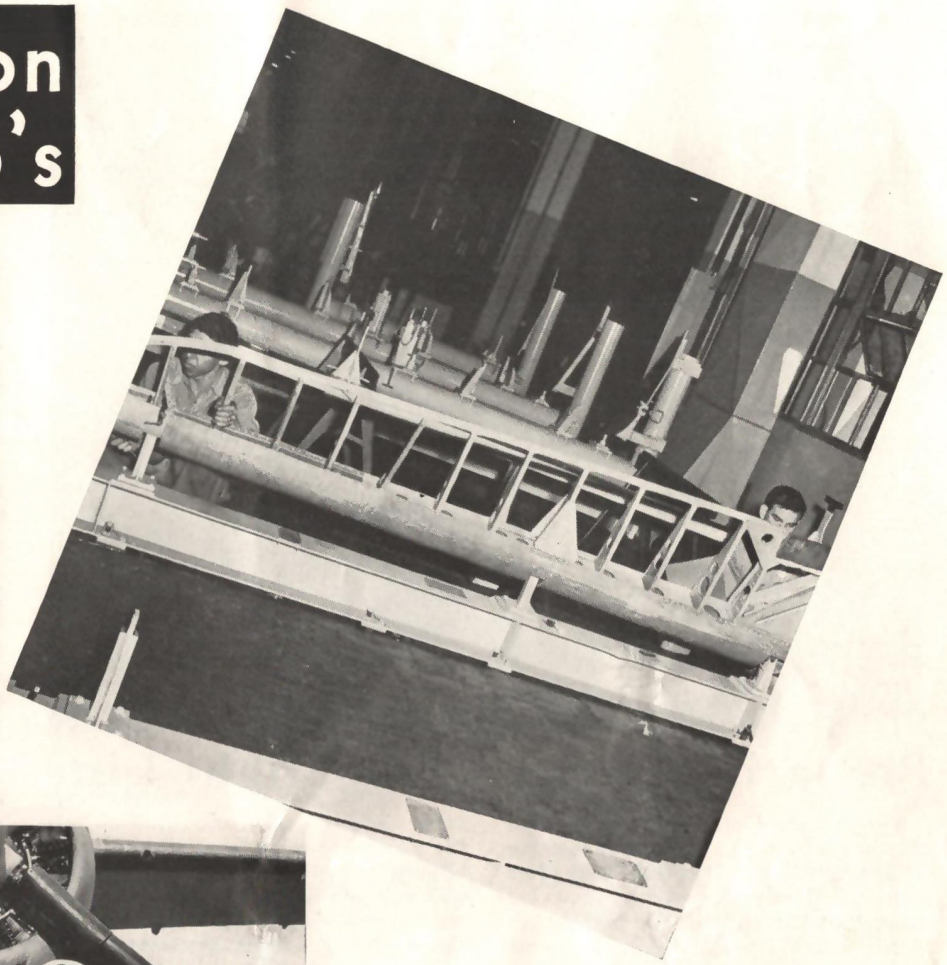
New oil distiller proves successful in separating metal filings and oil. Using a centrifugal force separator and a series of three oil drums, the Maintenance Department is now reclaiming "used" oil without any trace of metal filings.

OPA officials discuss rationing problems with plant rationing officer. Left to right: Mr. McCague, Mr. McDevitt, Mr. Krumm, plant rationing director, Mr. Saunders and Mr. Nelson.

ileron Section
ction of B-26's

Paying close attention to their riveting, these two will soon have an aileron section ready for checking.



Aileron section in final test jig, before being turned over to Final Assembly.

sen, accompanied by Briga- Mr. G. T. Willey, vice-presi- r, on recent inspection trip in-Nebraska plant.

Commander William Kellogge and Lt. R. E. Woods, U.S. Navy, pay visit to Martin-Nebraska plant.

Modern cafeteria equipment insures Martin-Nebraska employees of well-cooked meals.

Ceil Norris, Modification, drives home another nail in the Axis coffin.

Three more B-26's received final ground test checks prior to delivery to the flight line.

Preparing A B-26 For Flight Line

The personnel of Ground Test probably have one of the most disappointing jobs imaginable. They log hour after hour in Martin Marauders, and yet never leave the ground. It is their job to make final checks and adjustments on the motors before the planes are delivered to the flight line for actual test flights. They make other checks besides the motor in Ground Test, but it is here that they have the actual feel of the ship. They know that once the B-26 leaves them, it is practically airborne.

Under the guidance of O. V. Tyler, assistant factory superintendent, in charge of Camouflage, the crew-chiefs and ground-crew personnel have found many time-saving methods to lower the delivery time of their planes.

One of these time-saving ideas was trouble-shooting in connection with faulty generators. There had been instances when 35 and 40 hours were spent in tracing the source of trouble in a generator. With the new type of checking equipment, the job is now done in 2½ hours.

The machine needed to do this job had to include several different types of meters. It had to include a sensitive voltmeter, a variable speed-electric motor, a tachometer, a spline drive and mount for the ship's generators.

It was found that another machine was available for this purpose that had an entirely different usage, but which, with minor adjustments, could handle the job.

When the machines were received, several extra parts were attached, such as blower fans to keep the generators cool and wiring changed where necessary. The operation was inserted into the Final Assembly line. There it was possible to set the generators perfectly, seal the boxes and forget about any readjusting when the ships reached Ground Test. It also eliminated a possible source of accident by moving the operation away from the running engines and propellors.

Adverse weather conditions make the job of ground testing anything but an easy proposition. But next to the test pilots and Army fliers, the boys at Ground Test probably come closer to the B-26 and actual flying than any other of the personnel that help to build this ship.

★ ★ ★

Maintenance Reclaims Oil

Using a series of three drums, two of which are heated, and a centrifugal force separator, the Maintenance Department have developed a superior method of re-claiming oil from metal filings. The filings are emptied into the separator and locked inside of a drum containing a small opening at the top. By centrifugal force the oil is forced through the small opening and allowed to flow into a floor reservoir. As needed, the oil is pumped into the top of three barrels. Using gravity flow, the oil goes into the second of the barrels which is heated with steam coils and is two-thirds full of water. Since the oil will normally flow on the surface of water, it reaches this level very quickly. It then goes through a filter before being drained into the bottom barrel. This barrel is kept heated and ready for constant use.

Ask Cooperation On Women's Rules

The Women's Counselor, Mary Ross, advises that the following suggestions affect all women employees. Observation of these rules and adherence to them is requested.

In the Company's booklet, "Information for Employees," the various rules are listed. The following should receive closer attention:

Smoking in restrooms will not be permitted. Two ten-minute rest periods are provided at which time smoking is permitted in designated smoking areas and in offices for clerical workers.

Personal help in keeping washrooms and toilets clean and sanitary is vital to the safety and health of all employees. Observe rules of decency.

Martineers can help make their working time safer and more pleasant by doing their part in keeping the place where they work clean and orderly.

Keep your fingernails short. Injuries and infections have been caused as a result of long fingernails.

Neatness in appearance is an asset to everyone.

Avoid boisterous conduct and practical jokes, they result too easily in an injury.

Orange Blossom Department

Barbara Crouch (Accounting) to Joseph Reinhart, Joseph Reinhart, April 28, 1943 ★ Charlotte Finnell (Cost & Stores Accounting) to Lt. Charles Shoemaker, April 9, 1943 ★ Florence B. Bromwell (Inspection Department) to Lt. H. J. Kennedy, May 8, 1943 ★ Sylvia L. Hiller (Welding Department) to Lt. D. E. Larson, May 20, 1943.

Regardless of the weather, the motors of a B-26 must be tested. Here, J. R. Finnell, is shown adjusting the pressure by lying in a prone position atop the cowling, and reaching deep into the heart of the big motor.

Tool Design Breaks Tubing Bottle-Neck

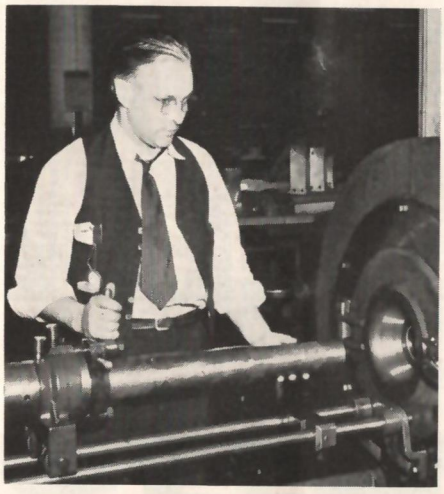
One of the operations in preparing motor supports for the B-26 was recently reduced to a bare minimum. Members of the Tool Design Department were given the job of breaking this bottle-neck and came through in first-class style. The operation was one of swaging metal tubing. Swaging results in a tapering of the tube and must be done accurately. Formerly, it was being done on a punch press in the ordinary time of 55 to 60 minutes. It was necessary to hand-feed the tubing into the press and constantly observe the operation. It also meant that a badly needed punch-press was tied up for this operation, instead of the normal punch pressing for which the machine was designed.

Tool Design suggested a different type of machine. That it is successful is illustrated by the fact that the operation is now completed in 15 seconds. It also releases the punch-press for its normal operation and requires little or no observation while the job is being completed.

Many time-saving operations have been worked out by the Tool Design Department. Safety and ease of operation for Martin-Nebraska employees are required of any new designs submitted by this department.

STORK DEPARTMENT

To Mr. and Mrs. Carl Higgings (Assembly) a daughter, April 11, 1943 ★ To Mr. and Mrs. Jess Wheeler (Timekeeping, Modification) a son, April 17, 1943 ★ To Mr. and Mrs. D. B. Velander (Purchasing, Modification) a daughter, April 17, 1943 ★ To Mr. and Mrs. Robert Lawrence (Final Assembly, Modification) a daughter, April 19, 1943 ★ To Mr. and Mrs. James Hronek (Tabulating) a daughter, April 3, 1943 ★ To Mr. and Mrs. Bob Johnson (Timekeeping) a daughter, April 29, 1943 ★To Mr. and Mrs. Harold McCall (Final Assembly) a son, May 2, 1943 ★ To Mr. and Mrs. Fred Winkelmann (Welding & Metal Bench) a daughter, April 7, 1943.



Bill Albaugh, second shift, foreman, checks swaging on motor support tubing on new time-saving machine.

Mrs. Margaret Traynor, first shift, Tool Crib A, has four sons in four different branches of the service—Army, Navy, Army Air Corps, and Marines.

Mothers And Sons Fight For Freedom

That women at home during this war are soldiers on the home-front was proven, the other day, when there came a request for a list of mothers doing war work while their sons were fighting somewhere overseas. These soldiers of the home-front have stepped forth from the ranks of home and Red Cross, into the assembly lines of war factories to help supply the needs of more production.

On Mother's Day, several of Martin-Nebraska mothers were featured in one of the Sunday newspapers. The majority of the mothers could not be featured, however, thinking that the Martineers would be interested in knowing just who some of these mothers are, the following is a list of a few Martin-Nebraska mothers who have sons serving overseas.

(1) Mrs. Margaret Traynor really deserves "honorable mention," for she has four sons: Thomas, in the Army in Australia; John, in the Navy somewhere overseas; while Ed is training in the Army Air Corps, and Joe is training in the Marines. Mrs. Traynor's daughter, Mary, is also working here at Martin-Nebraska in the Telegraphic Department. (2) Mrs. Pearl Quinn, second shift, Timekeeping, Modification, has four sons in the service; two in the Army, two in the Navy; one son is now serving overseas. (3) Mrs. Louis Bobitt's son, Cpl. Olin E. Cox, was transferred from the Infantry to the British Commandos, and is now a prisoner of war in Italy. (4) Mrs. Sara Cannon, first shift, Camouflage, has a son, Lt. Commander R. L. Cannon, a dentist in the Navy, who was there when it happened at Pearl Harbor. (5) Mrs. Maude Barry, first shift, Purchasing, whose son, Capt. Jack Barry, is in the Army's Infantry in Hawaii. (6) Mrs. Camille Swanson, second shift, Machine Shop, has a son, Pvt. Mahlon E. Hayes, in the Marines in the South Pacific. (7) Mrs. Violet Chandler, first shift, Inspection, has two sons, Cpl. Allen J. Chandler and Pvt. H. W. Chandler, now serving overseas. (8) Mrs. Eunice C. Woodyard, first shift, Inspection, has a son, Homer F. Woodyard, Machinist Mate, second class, serving in the South Pacific. (9) Mrs. Giselee Darling, third shift, Finishing & Plating, has a son, Richard Darling, in transport duty, Casablanca, Africa. (10) Mrs. Augusta Shipman, third shift, Finishing & Plating, has a son, Sgt. G. A. Shipman, serving in New Guinea. (11) Mrs. J. B. Smolik, Cafeteria, has two sons, one in the Navy overseas, one in the Marine Air Corps at Hawaii. (12) Mrs. Doorthy Fogle, second shift, Fininishing & Plating, has a son, serving in the Marines overseas. (13) Mrs. Dorothy Burkland, first shift, Welding and Heat-treating, has a son in the submarine service overseas.

This list is not complete, by any means, but it does give one an idea of the smallness of this world, and how many miles the Martin-Nebraska families cover in this war.

UNEXPECTED VISITORS. *Crew of one of the Mid-Continent Airliners which landed at the Martin-Nebraska airport during the recent flood. Left to right: J. W. Neuman, Betta Barnett, Charles Rawson, Frances Wilson and A. H. Gilbertson.*

Mid-Continent Airlines Use Martin-Nebraska Field During River Flood

The recent flood condition that found Omaha's municipal airport under seven feet of water, made it necessary for the Mid-Continent Airlines to arrange for special army permission to route scheduled flights to and from our field.

Although transit flights are not ordinarily permitted from this field, the army personnel was willing to co-operate during the emergency conditions and enabled air-service to be maintained into Omaha.

With the Missouri River once again back in its banks, the airlines are using the regular facilities of the municipal airport.

Facts About V-Mail Told

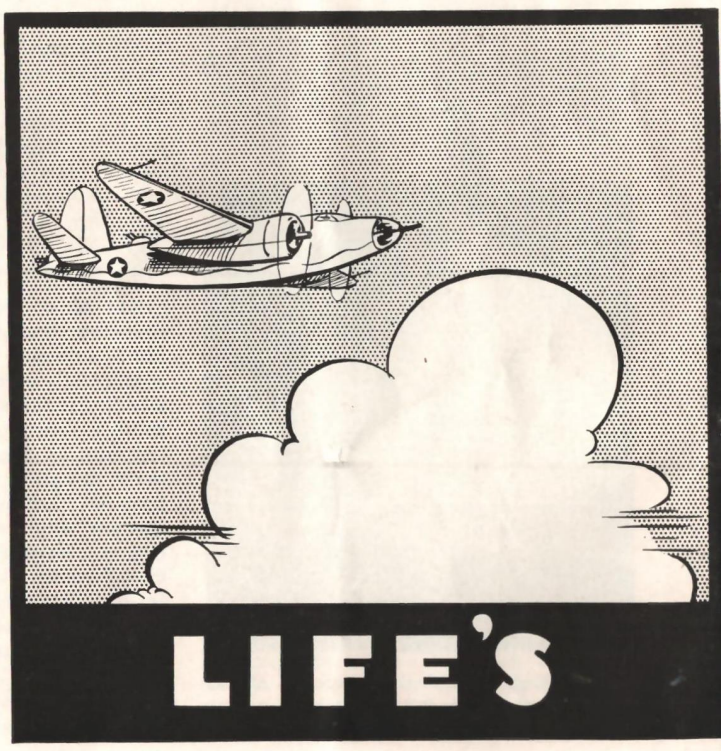
Realizing that employees of Martin-Nebraska must send over a considerable volume of V-mail, we thought you would be interested in the following information sent us from the War Department's Bureau of Public Relations:

An increase of 83% in the volume of V-Mail dispatched overseas on rolls of film for the short month of February over January, has been announced by the War Department. A total of 5,990,570 microfilmed V-Mail letters as against 3,281,504 during the month of January, did not include several hundred thousand V-Mail letters which were dispatched in their original form to areas where V-Mail installations have not yet been completed. During the early part of April, complete V-Mail service equipment should have been in operation in North Africa.

★ ★ ★

Soldier Remembers Sister, Easter

For most of us, last Easter is past history; but for Ruby Vuich, of Tool Design, it will go down as a day to long remember. Her brother, Captain Russell Kresslov, an Air Corps Observer, on active duty in North Africa, ordered a corsage to be delivered on Easter to his sister. We don't know all the details on how Captain Kresslov managed to get his order filled, but we do think he wins the prize for long-distance ordering. Captain Kresslov was recently awarded the Air Medal for distinguished service in an action taking place on February 20th. Most recent dispatches indicate that he has been in the thick of the Tunisian battles.



A Brave Ship And A Brave Crew Out-Fight Jap Foes

Here's a story well worth reading, told by Captain Charles E. Shelton, AAF, Hickam Field; it concerns a B-26 and her gallent crew. The story appeared in the March issue of "The Sperryscope."

"Staff Sgt. John J. Gogoj, of Bellerose, New York, was the top gunner in one of the Air Forces' B-26's, equipped with torpedoes that put their tin fish into a Japanese carrier during the Battle of Midway. His pilot, Lt. James Muri, of Riverside, California, was guiding his plane onto the scene of battle several hundred miles from Midway. When the B-26 was about 25 miles from the Jap task force, which included at least four carriers, Sergeant Gogoj's story began.

" 'We were sailing along, headed right for the Japs' ships out ahead of us. Me and my guns were pointing forward, out over the pilot's cabin, ready for any trouble from in front of us. That's where the Japs were, and that's where I expected trouble from,' Gogoj said.

" 'Then I heard Ashley, (that's Earl Ashley, a Pfc, he's from Williamstown, South Carolina), start shooting his gun in the tail. I swung around, and there about 500 feet away was a Jap pursuit plane right on our tail. It was one of those Zeros.

" 'He was shooting right into us; I could see the flame coming out of his wing guns and that cannon was lit up plenty, too. All I know is that I swung my guns on him and squeezed the trigger, then hell started popping.

" 'He hit my left gun with one of those cannon shells. My turret cover was all busted. Pieces of it hit me. Pieces of it cut my scalp," he said pointing to a half dozen cuts on his scalp. 'I put my hand up to my head. Then I felt something kind of sticking my right temple. It was sticky and wet. I tried to brush it off, but I couldn't get it loose. It was under the skin. I picked at it like this,' he indicated making a tweezer-action with his thumb and finger. 'It was a bullet that had gone under the skin. I got hold of it, and pulled it out.

" 'Then I went down below into the plane and took some sulfanilimide and started to bandage my head. I had the bandage all ready and just ready to put over the cuts, when a bullet hit my hand here,' and Gogoj pointed to a scarred nick on his left middle finger, 'and bounced off, I guess, and hit me here over the left eye. Boy, I tell you that made me mad! I was sure bloody then. You might say that after that, I was immune to pain, but I sure looked bad with blood all over by face and coveralls.

" 'Then I went back up to my guns. The right one was still working. And it was a good thing, because another Zero was on us. He wasn't actually shooting at us, but was up above us about a thousand yards. I could see that he was trying to get just a little more altitude so that he could zoom down on us. I figured he was ready to drop on us, so I opened up with the right gun. I pulled the trigger.

" 'Tracers went up into him right around the pilot's compartment. I think I got him all right because he just plain disappeared, just left completely. I'd like to go back to Midway to look at our plane. You know, we had more than 500 bullet holes in her. We got an aircraft carrier however, and it sure was worth it.'

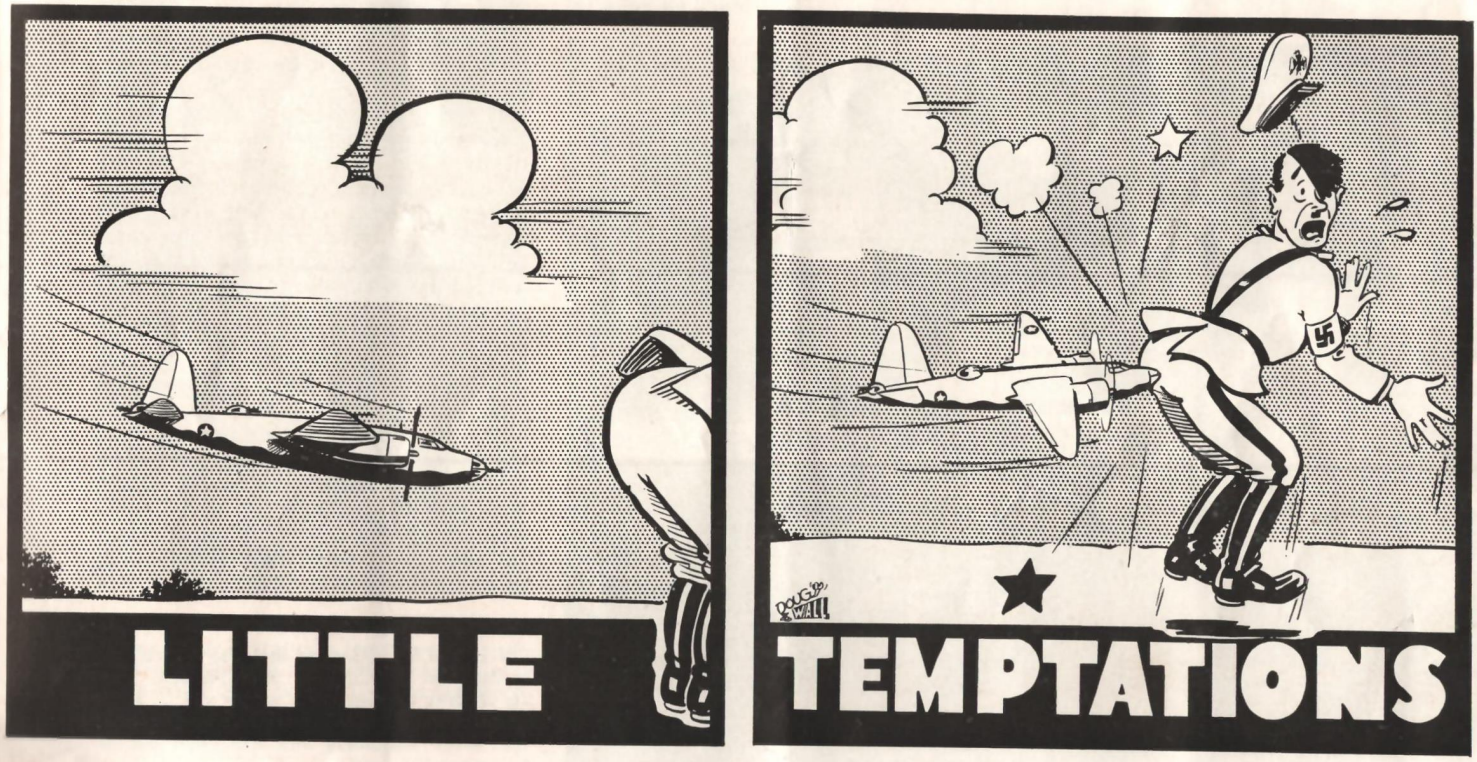
"All members of the B-26 crew were awarded the Distinguished Service Cross for their performance."

Aviation Reaches "Full Growth"

There is no question about it, the aircraft industry in the United States has grown up. Here are a few figures, taken from the March 13th issue of "Credit Business Week," that will prove that statement:

In 1942, we made 48,000 planes (including combat ships, cargo carriers, and trainers) against 19,000 in 1941; the goal for 1943 is 104,000, and we might go as high as 150,000 in 1944. The average plane built in 1942 was 200% heavier than in 1941; those coming off the assembly line this year are running 300% heavier, due to the preponderance of long-range bomber and cargo types in the program.

It was in 1942 that most of the requisite plants were built and tooled. There were instances where material shortages and lack of government-furnished equipment retarded this growth. There are now 64 companies operating 100 plants, as compared with 41 companies working 59 plants shortly before Pearl Harbor. Personnel has grown by 1,500,000, of whom 115,000 are women; dollar volume raised from $1,750,000,000 in 1941 to $4,500,000,000 for 1942; and the back-log of orders stands around $9,000,000,000.



Women at War

Writing To Your Fighting Man? Make Letters Attractive, Newsy

As If You Were Talking. . . .

Do you ever sit down to write to your fighting man—and find that the words just don't come?

Were it possible to hitch a ride on a magic carpet and drop in on him at camp, in North Africa, or England, would you be tongue tied? Suppose he were to open the door and walk into your room? Would you be at a loss to know what to say?

The difficulty would be in crowding *everything* into those first glorious moments. The words would tumble over each other in their rush to be spoken. Your sentences would be alive and sparkling, brim full of your joy at being able to talk to him. You'd tell him first of your love, of your pride in him. Then there would be news—news of friends, the home town, his old job—all the things that were close and dear and familiar before he went away.

You are merely speaking to him now through your pen or typewriter rather than with your lips. Why can't you tell him the same things? In the same way? Your letters are *you* visiting him in the only way possible under present conditions. Make these visits as cheerful, as bright, and as informal as he has always known you to be. You certainly wouldn't want to bore him, even depress him by being unnaturally formal.

Your letters bridge the gap of long miles and many days. They are the tie between him and his life at home. They should keep him in contact with all he has known and loved, giving him a sense of permanence and continuance. Your letters will keep fresh the love and devotion and understanding that you both cherish. In the case of very new husbands and wives, it may be correspondence that has to start building that foundation of love and loyalty.

"Mail Call" is the high spot of the day or week for every service man. Army officers say the delivery of mail is next in importance to the serving of meals. Don't let your man down. Even if you are busy or tired, don't neglect or delay in sending on its way this all important sustenance. Send it often.

Tell him about your war job, how production is increasing, and how confident you are of the future. Joke about your slacks or other working uniform—tell him he really should see you in it. He'll chuckle over your gossipy account of the neighbors and their doings. He will be reassured—and proud—when he reads that gas rationing is making a new person out of you—that you broke your own record Sunday by hiking five miles. He'll brag to friends about the latest trick you have taught his dog. And he'll be heartened and thrilled by your reference to good times together and the happiness you're planning when he returns.

Make your letters look as attractive

[*Continued on page 18*

Wartime Hints

LIPSTICK. Don't let anybody kid you about your lipstick. Of course, you never stop an important job to use it. But it is a symbol of femininity and one which, when used correctly, serves the same morale-lifting purpose as a becoming hair-do or a new dress.

SCORCHING. A brand new ironing board cover and scorched already? Try laundering a new cover before using and it won't scorch so readily. If you make your own, old sheets are excellent material. Hem the edges and run a drawstring around it; this is easier than tacking and facilitates removal for washing.

SCRAP. Here's one way to kill two birds with one spade—when digging in your Victory Garden, remember the scrap drive, too. A rusty horseshoe, the lost bell from Junior's tricycle, or an old rubber tire — take time to put them in the scrap to be collected.

LUNCH BOX. Do you sometimes run completely out of ideas for the lunch box? and your new sandwich recipes turn out to be just so many more dry lunches? Why not try a few variations? Small paper cups with covers to fit—if you can still get them—are fine for slaw, pudding, baked beans, and other moist foods. These little cups can even be used in paper-bag lunches.

If you are fortunate enough to have a metal lunch box, you can serve practically a full course dinner. One ingenious woman uses small glass refrigerator dishes with their covers for vegetables or meat dishes. Coffee cups or small bowls serve admirably if wedged in with fruit, napkins, etc. Covered paper cups will also serve here. A thermos containing a hot or cold drink completes the meal.

For any kind of lunch, wrap every sandwich separately in wax paper; use fillings that will not wilt or soak into the bread. Add something juicy—an orange, other fruit, or beverage. Don't pack anything that will spoil from standing several hours in a warm place. Include the proper utensils. Eating salad without a fork is difficult.

ON ITS WAY. *Getting that daily letter off to husband Bill Shipley is a pleasant task for Audrey Shipley, who works in J. T. Hartson's office. Staff Sergeant Shipley is one of the Army Engineers and has been out of the country a year.*

Fighting Food Waste Job Of Housewife

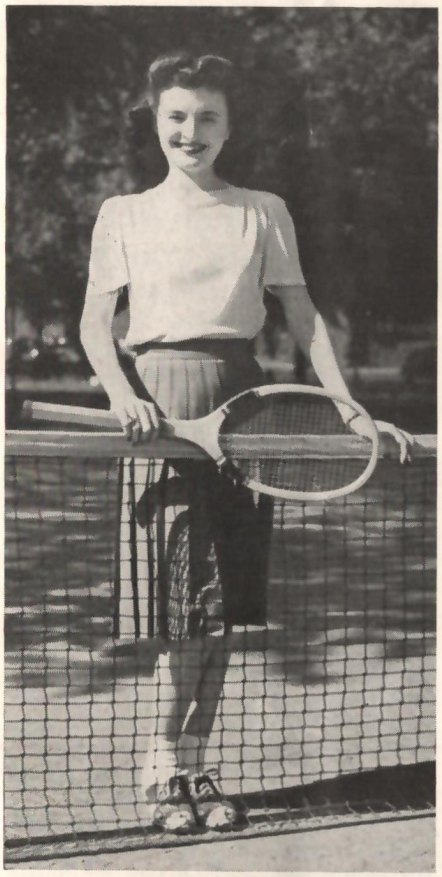
Fighting food waste is daily becoming more important. Although a job for the whole family, women are still commanding officers of the kitchen forces. They are commanding officers whose jobs have to be accomplished in spite of their war work and the inconveniences of rationing.

One slice of bread allowed to grow moldy, one apple or carrot left to shrivel—these are small items. But multiply them by the slices of bread, the apples, and the carrots wasted in all the homes all over America and the figure is staggering. So staggering, in fact, that it could down an army of fighting men.

Rationing has made the most thoughtful housewife more conscientious. She juggles ration points to stretch meats and canned goods over her family's needs. Leftovers are incorporated into tasty dishes and over-generous servings are not dished up to be left on plates.

Unrationed foods have to be conserved, too. War workers eat more than they did at less strenuous jobs and fighting men eat more than they did in civilian life.

RIVALING THE FLOWERS IN FRESHNESS AND BEAUTY. *Lovely Barbara Joyce Cave, 8-year-old daughter of Mr. and Mrs. Gordon Bernet Cave of Stansbury Estates, is one of the many flower-lovers of her neighborhood. Attracted by the beautiful pansy and tulip bed of her neighbor, Mrs. W. A. Downing, she promptly offered her services in tending it. Barbara Joyce's father is in Sheet Metal, second shift, Plant 1. He brought his family here from Wallake, Iowa.*



RACKET DEAR. *Carolyn Graham of Tool Design, Army Division, is typical of the hundreds of Martineers who, with the first breath of spring, eagerly turned to the out-of-doors for after hours recreation. Tennis ranks high in sports for popularity.*

Making Own Clothes Is Lots Of Fun

Two young girls paused on a crowded sidewalk to look at a shop window displaying new cotton dresses. One broke off in the middle of an admiring comment to gasp: "Are they kidding?"

No, "they" weren't kidding. The price tags were meant to be taken seriously. Seriously in spite of the fact that they were two to three times the amount the girls had spent for similar dresses in previous summers. The prices were high enough to startle even the most war-minded of customers. Saleswomen, when questioned about the high prices, say "It isn't the material; it's the labor."

But, material or labor, a few of those bright, crisp dresses still make a very sizable dent in the pocketbook. What's to be done about it? We have already become accustomed to the idea that we can't buy all our vegetables in cans. Why not accept the fact that dresses, too, cannot (by all of us) be purchased ready to slip into.

A walk through the yard goods departments is reassuring. The counters look like a summer garden. Beautiful pastels, bright, splashy prints—all the variety one could wish for is there for the buying. *And* prices are not staggering but much nearer pre-war budgets than anything that can be bought ready to wear. For a fraction of the price of a ready-made dress, a clever woman can make one herself.

Making one's own clothes has always been a fascinating and satisfying experience. In the first place, there are none of the disappointments connected with planning a dress, only to find that the stores don't possess such a dress made in the same style and in the same material. On the other hand, one can find practically anything in the way of material and color on the counters. The fashion magazines contain many suggestions for practical and becoming patterns. Most fun of all is shopping for just the right trimming, just the right belt or flower.

If you have a dress form or can get one, you are extremely lucky. None of the inconveniences of fittings for you. But even without this aid, just a little cooperation from sister or mother in the matter of fitting will be sufficient. One clever woman fits her own suits and evening dresses simply by standing in front of a full-length mirror and going to work with pins.

Cotton, of course, emerged from the kitchen, beach and classroom long ago to go to business, to parties and, in fact, just everywhere. Although house dresses and play clothes are still the most simple, cottons for the "outside world" can have all the style and lines that our silk dresses of a few years ago possessed. They can be just as professional when worn by the career woman and just as smart for church or shopping.

A print dress, made in classic shirtwaist style, and topped by a solid color bolero can't be beat for almost any daytime wear.

Write Your Man In The Service

[*Continued from page 16*]

as possible. A letter done neatly on nice-looking stationery is cheering even before the first word is read. Send snap shots of yourself, the family, friends, and pets. He'll love them and proudly show them off to friends.

Be yourself, but only to the extent that that person is a happy, confident self. A boy who has spent the last three nights in a fox hole, snatching only a little troubled rest between bombing raids and eating only his Army Ration C won't be much impressed with petty whining over gas rationing and the high price of clothes. He might feel that his suffering and perhaps dying is not appreciated.

Encourage the men of the family to write. Letters from wife, mother, or sweetheart are his very life, but he needs the "man talk" news from Dad or brother or his pal at home. As for Dad, tactfully censor his letters for opinions on the horrible state of the Government, rationing, tires and the other troubles of civilian life. After all, Dad is voicing an *opinion*. Your service man is fighting for his life and yours.

Reading beautiful letters written by others is inspiring. Imitating them is a mistake. Be yourself and imagine you are talking face to face. Write as if you were talking to him—the way you will be talking to him one day soon.

Box Kites to Bombers

[*Continued from page 7*]

tin where he sat in an automobile with his mother.

"Is there any doubt about her flying?" he asked.

"I'm interested in those ducks," Martin smiled easily, eyes gazing toward a flock skimming low. "They don't worry about flying."

Presently the crew went aboard—Ken Ebel, one of the world's greatest test pilots, and then Assistant Chief Engineer of the company; McCarthy, the project engineer and co-pilot; Benny Zelubowsky, the flight engineer and foreman of Experimental, who was to be mentor to many other flight engineers of big flying boats.

The engines sang a mighty quartet, the China surged forward slowly to taxi toward the river mouth. Ebel was cautious. Turning this way and that, he and his crew studied the hydronamic reactions. Presently Ken opened the throttles, the leviathan leaped forward. In a few second she was "on the step," swimming easily.

Eyes that strained from spectator boats bulged when, a few seconds later, the great ship soared into the air and sailed steadily along 30 feet over the water. Ebel eased her off, set her down as lightly as a feather. She had flown on her very first trip! The ship that couldn't fly had confounded her critics.

Through the long grind of test, the China Clipper and her sisters, the Philippine and Hawaiian Clippers, behaved beautifully. Then came a momentous day—November 22, 1935.

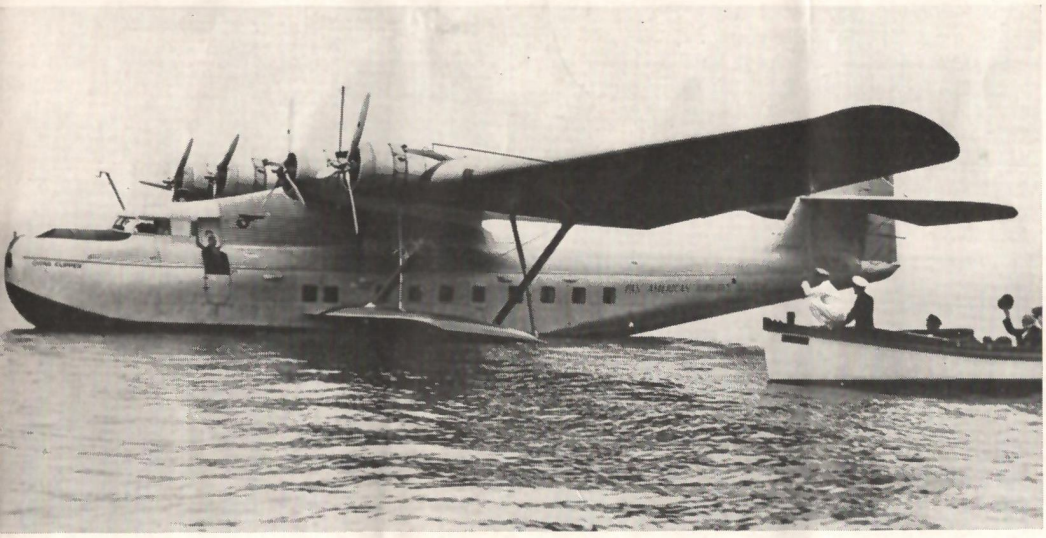
A throng of people stood on the banks at San Francisco. Before them the China, her four engines turning, strained at her moorings. Before a knot of national dignitaries, Pan-American's president, Juan T. Trippe, turned to Capt. Edwin Musick, the China's first skipper.

"Captain Musick, proceed to Manila," he ordered.

A few minutes later the China Clipper, with a blue-ribbon passenger list, soared aloft, circled the harbor, crossed the Golden Gate, and stood majestically out to sea.

Said President Roosevelt, in Washington.

"I thrill to the wonder of it all!"



The China Clipper At Rest

The Cover

Another "first" is established on the cover of this issue of The Star, which is a reproduction of a water-color by John T. Gorsuch, of the Art and Development Group.

His work has frequently appeared in this magazine in the form of pen-and-ink sketches and numerous lay-outs,

JOHN T. GORSUCH

but this is his first color assignment, though by no means the last.

A native of Baltimore and a graduate of the Polytechnic Institute, John studied art at the Maryland Institute. All day long he is making paintings, draftsmen's drawings, perspectives and the other art work required, then goes home for relaxation; he—yes, you guessed it—paints. Other interests include a charming wife and one child.

★ ★ ★

Marauders Home From War Fronts

[*Continued from page 5*]

He was flying "Old 93" in those days. He's mighty proud of that ship. One favorite story of his is how he took off under a hail of enemy bombs—a 1000-to-1 shot. His ship was fairly blown into the air under a hail of shrapnel, thrown by Japs on the New Guinea Airdrome.

Three hours later he brought her down in a smooth landing, despite the 200 shrapnel holes in her. The automatic controls for salvoing bombs were shot out; one propeller control was destroyed; the right wheel and tire were out of commission; holes ranging in size from a finger-tip to a foot were stretched from the props to the trim tabs.

Gammon's bombardier, Tech. Sergt. Michael Bauman, of Plymouth, N. H., helped to save their lives by opening the bomb bay doors by hand and jettisoning the bombs and putting out the flames which were sweeping the bomber. For this he received the Silver Star.

"The main purpose here is to tell you how all-important your work is. You're not building an airplane, you're building a lethal weapon."

A BOMBER IS BORN

INSPECTION'S JOB

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PREVIOUS articles on this page have explained the procedure by which a typical Martin bomber is designed and built in quantity. Employees of every department of the Martin organization—operating with that teamwork which wins wars—have a hand in one way or another in the job.

The Army, for instance, decides from its tactical plans and from contact with the enemy that a certain type of bomber is needed. Selecting Martin to build it, they send us a Type Specification. This explains the characteristics and performance the Army wants from this particular plane. Included will be the plane's proposed speed, range, service ceiling, size and number of bombs, offensive and defensive armament, number of crew, and many other items.

Engineering takes this Type Specification and, working with Manufacturing and Inspection, devises an airframe that will carry the offensive, defensive and auxiliary equipment the Army wants carried, and at the same time deliver the performance required. These preliminary labors of Engineering, Manufacturing and Inspection result in an airplane on paper, shown from the top, side, front and internally. The design is accepted and Contract Administration closes the multitudinous financial transactions necessary to a project that is going to send hundreds of completed planes to our men all over the world.

Meanwhile the three departments, working closely together, will do the job of designing the plane down to its smallest detail, gathering the materials with which to build it, actually building the plane in quantity, and making sure that every one of the thousands upon thousands of items on the plane accord with the agreed-upon specifications. Briefly stated, Engineering will do the designing, Manufacturing the gathering of materials and the actual construction, and Inspection will perform the task of double-checking that the plane comes up to the traditional high standards of Martin workmanship and is exactly up to specification. The purpose of this article is to give some idea how Inspection goes about its share of the task.

To do that we shall follow in a broad way the plane through each step from the receipt of the Type Specification till the finished plane is ready to be turned over to the Army, for Inspection is in the picture every step of the way.

THE "airplane on paper" having been accepted, the next move is to lay out the plane more in detail, and to create a "manufacturing breakdown" which will show in a general way what materials and tools will be needed and how the plane is going to be put together in our shops. In this task representatives of Inspection play an active part. Especially interested are the men from Inspection who will direct the procedure their inspectors will follow in double-checking each step in the creation of the plane.

As soon as each major layout is completed and accepted, Manufacturing, Inspection and Engineering set to work on the design, materials and methods of creation and inspection of the individual parts that go to form the major layouts. Meanwhile materials are being gathered, tools prepared, and manufacturing begun. Inspection will have a hand in each of those processes.

Three classes of materials come in, and all three classes receive close scrutiny from Inspection. The three classes are raw stock, procurement items, and sub-contracted parts. Raw stock and procurement items are checked by Receiving Inspection; sub-contracted parts are checked by Outside Vendor Inspection.

Raw stock includes, as the name implies, bars and sheets of steel and aluminum, extrusions, and so on. Procurement items are such "off-the-shelf" standard parts as nuts, bolts, gears, chains, paint, white lead—there are thousands of them. Sub-contracted parts may range anywhere from small details of a plane up to such major assemblies as whole wings, tail surfaces and landing gears. All three classes of items pour into Receiving or Outside Vendor Inspection from all over the country, and are carefully checked as to quantity, quality, conformity to specification, and possible damage in shipment.

Even where the items have already been checked by members of our Inspection Department posted in suppliers' plants, or have passed through our Inspection Division at Cleveland, assurance is made doubly sure by having them checked over here. The items then go to stockrooms, from which they are drawn as called for in the process of assembling the plane.

Meanwhile tools are being ordered or built to make the materials received into finished airplanes. Inspection checks each tool as it is built or received; then, when the tool is installed on the floor, checks the installation.

Having thus double-checked the materials and tools, Inspection performs the same function as the plane grows from detail parts to sub-sub-assemblies to sub-assemblies to major assemblies to the completed plane.

As each detail made here is completed, for instance, it is turned over to Inspection to check to make sure it has been formed, shaped, machined, stamped or pressed in conformity to the drawing and specification.

The details then go to stockrooms, from which they flow to become sub-sub-assemblies. Each step of their assembling is checked by Inspection, and so is the finished assembly.

ESPECIALLY important all through the process is the matter of clearances. Not to make too far-fetched a comparison, a modern bomber, composed of thousands upon thousands of details, is very similar to a jig-saw puzzle. It is Inspection's job to check that the specifications are so followed that the pieces are going to fit—no small task.

In checking the fitting together of the major assemblies into a completed plane, Inspection has also the job of seeing that all installations such as the electrical, hydraulic and control systems, have been properly connected.

Even with the plane rolled out the door of Final Assembly, Inspection's task is not finished. The overall functions of the plane must be checked: the engines run, the fuel pressures and flows measured, the auxiliary power plant operated, the fuel gauges checked, the turrets operated and the compass swung. Inspection's last job is to prepare for the plane the proper shipping papers, which show the exact status of every part of the ship. It is a final summary of the plane's exact condition.

J. Heydenfrost